Minor monitoring violation disclosure

SPU is required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. On December 8, 2003, SPU did not complete one sample for fecal coliform in the raw water on the Cedar supply prior to disinfection, and therefore cannot be sure of the quality of your drinking water during that time. Although this one sample was not collected, continuous monitoring of treatment and extensive monitoring within the system was conducted and there was no indication of any public health risk.

How you can get more information

Seattle Public Utilities

Customer Service Center: . . . . . .206-684-3000 (To ask billing questions, or to report leaks or dirty water, etc.)
Water quality web site: . . . . . .www.seattle.gov/util/services/WaterQuality
Water quality e-mail: . . . . . .drinkingwater.quality@seattle.gov
Water quality phone: 206-615-0827

Washington State Department of Health

Web site: . . . . . .www.doh.wa.gov/ehp/dw/

US Environmental Protection Agency

Web site: . . . . . .www.epa.gov/safewater/
Safe Drinking Water Act Hotline: 1-800-426-4791
Safe Drinking Water Act e-mail: . . . . . .hotline-sdwa@epamail.epa.gov

How you can be involved in decisions

Seattle Public Utilities and the City of Seattle seek consumer opinions in many ways. You can participate through public hearings associated with environmental permitting and review of new facilities. There are regular utility briefings at City Council meetings and other formal or informal communications with utility management and elected officials. Please check the daily or community newspapers, or our web site, for listings.

Sharing this information

Please share this information with all the other people who drink water provided by SPU, especially those who may not have received this report directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this report in a public place or distributing copies by hand or mail. This report is also available electronically at the SPU web site listed above.

Seattle Public Utilities
Seattle Municipal Tower Building
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P.O. Box 34018,
Seattle, WA 98124-4018

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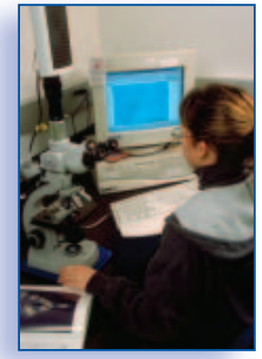


Message from the Mayor

The Seattle metropolitan area is fortunate to have pristine sources of drinking water. Protection of these precious resources in one of my highest priorities.

The following report provides important information about your drinking water, including new information to help you review the good news about water quality, including:

- Water treatment and infrastructure improvements that have addressed lead and copper issues
- Completion of the Cedar Water Treatment Facility

You can help our efforts to protect the water supply by becoming familiar with this information. I encourage you to read this report and to visit the Washington State Department of Health web site at www.doh.wa.gov/ehp/dw/, the US Environmental Protection Agency web site at www.epa.gov/safewater/, and the SPU web site at www.seattle.gov/util/.

Sincerely,

GREG NICKELS
Mayor of Seattle

Seattle Public Utilities

2003 Drinking Water Quality

Annual Report

What's New Since Last Year

Mailed June 2004

What's in our drinking water

Seattle is fortunate to have one of the cleanest sources of drinking water in the country. Seattle Public Utilities (SPU) has put a great deal of effort into improving the water quality by installing new treatment facilities and investing in other important infrastructure projects. Monitoring results from 2003 show that for those compounds that are detected, the levels are well below the safe limits established by federal and state agencies. For other water quality information, please check our web site (listed on the back) or call 206-615-0827. We can also send you a list of the 177 compounds for which we tested but did not find in our surface water supplies, including unregulated contaminants.

Water quality monitoring data can be difficult to interpret. To make all the information fit in one table, we use many acronyms that are defined below the table. In Seattle, if you live south of Green Lake, your water probably comes from the Cedar River supply. Areas north of Green Lake usually receive water from the Tolt River supply. Each source can provide water to other areas in Seattle. For more information on the sources, see page 4.

		EPA's Allowable Limits		Levels in Cedar Water		Levels in Tolt Water		
Detected Compounds	**Units**	**MCLG**	**MCL**	**Average**	**Range**	**Average**	**Range**	**Typical Sources**
Turbidity	NTU	NA	TT	0.95	0.2 to 4.5	0.06	0.02 to 0.16	Soil runoff
Total Organic Carbon	ppm	NA	TT	0.7	0.2 to 1.6	1.6	1.3 to 1.9	Naturally present in the environment
Fluoride	ppm	4	4	1.0	0.9 to 1.04	1.0	0.6 to 1.2	Water additive, which promotes strong teeth
Bromate	ppb	0	10	NA	NA	0.6	ND to 3	By-product of drinking water ozonation
Total Trihalomethanes	ppb	NA	80	32	23 to 55	45	22 to 72	By-products of drinking water chlorination
Haloacetic Acids(5)	ppb	NA	60	28	14 to 41	29	19 to 40	
Total Coliform	% positive samples	0	5%	Highest month = 4.8% Annual Average = 1.5%				Naturally present in the environment
Chlorine	ppm	MRDLG = 4	MRDL = 4	Average = 0.9 Range = 0 to 1.7				Water additive used to control microbes

Definitions

MCLG: Maximum Contaminant Level Goal - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MCL: Maximum Contaminant Level - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MRDL: Maximum Residual Disinfectant Level - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG: Maximum Residual Disinfectant Level Goal - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

TT: Treatment Technique - A required process intended to reduce the level of a contaminant in drinking water.

NTU: Nephelometric Turbidity Unit - Turbidity is a measure of how clear the water looks. The turbidity MCL that applied to the Cedar supply in 2003 is 5 NTU, and for the Tolt it was 0.3 NTU. 100% of the samples from the Tolt in 2003 were below 0.3 NTU.

NA: Not Applicable

ND: Not Detected

pCi/L: picocuries per liter

ppm: 1 part per million = 1 mg/L = 1 milligram per liter

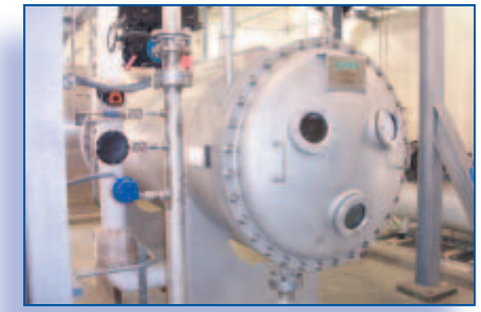
ppb: 1 part per billion = 1 ug/L = 1 microgram per liter

1 ppm = 1000 ppb

SPU's newest addition: The Cedar Water Treatment Facility

In mid 2004, the new Cedar Water Treatment Facility will begin operation for the Cedar supply. This Facility was developed in part to comply with an Agreed Order between the City of Seattle and the Washington State Department of Health. The Agreed Order stipulated a process that SPU needed to follow to improve water quality for the Cedar supply.

The last step of this process is the construction and operation of the new treatment facility that improves public health protection by adding two new treatments, ozone and ultraviolet light (UV), which are very effective at killing *Giardia* and *Cryptosporidium*, as well as bacteria. The ozone process will also improve the musty/earthy taste and odor that occasionally occur in this supply.



Ozonation is a new treatment process for Seattle's Cedar supply. Ozone was added to the Tolt supply in 2001. Ozone gas is a very powerful disinfectant which kills *Cryptosporidium, Giardia*, bacteria, and viruses. Ozone also helps improve the taste and odor associated with algae.

Ultraviolet Light disinfection is another new treatment process for Seattle's Cedar supply. UV light is not really added to the water, but the water goes through pipes with large UV lamps inside. The UV light is very effective at killing *Cryptosporidium, Giardia*, and bacteria, but does not add a chemical to the water and will not change the taste.

These two new processes, along with continued protection of the Cedar River Watershed, continuous monitoring and surveillance, and controlled river diversion, are part of a multi-barrier approach to providing reliable public health protection. The new Cedar Water Treatment Facility also provides the flexibility needed to meet anticipated changes in drinking water regulations.

Lead and copper in drinking water

SPU is responsible for making the drinking water less corrosive in order to reduce lead that comes from some types of plumbing materials in homes and businesses. Although there is no detectable lead in the Cedar and Tolt supplies and the distribution system does not use lead service lines, SPU has taken many steps to reduce lead in water. These include promotion of a lead solder ban that took effect in 1980, covering several open reservoirs, and converting from gas chlorination to a less corrosive hypochlorination treatment. A recently completed treatment facility on the Tolt supply with optimized corrosion control has further reduced corrosivity of the water.

Most lead in drinking water comes from lead solder (used primarily in the 60's and 70's), and brass fixtures. Some lead can come from certain types of galvanized plumbing. The pipes in your home, regardless of the materials, can still have an impact on the quality of water from the tap. You should always consider running the water from the pipes before using for drinking or cooking, especially when the water has not been used for more than 2 to 3 hours.

SPU is required to monitor for lead in drinking water at the tap, and recent sample analyses indicate the measures described above have resulted in regional lead levels well below EPA limits. Shown in the table are the 2003 results of regional sampling at 375 homes plumbed with copper pipe and lead solder. These samples were taken after the water sat for at least 6 hours in the pipes.

The graph shows how the regional lead levels have decreased since the 1992 and 1997 sampling. The levels shown are the 90th percentile of all the results. In other words, 90 percent of the samples had lead less than the level shown, and 10 percent had greater lead levels.

For those homes that may still have high levels of lead, there may be health impacts. Infants and children who drink water containing lead in excess of 15 ppb could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink water with high lead levels over many years could develop kidney problems or high blood pressure. If you would like more information about lead, please call 206-684-7834 or look on SPU's water quality web site. EPA also has good information on lead at http://www.epa.gov/safewater/lead/index.html.

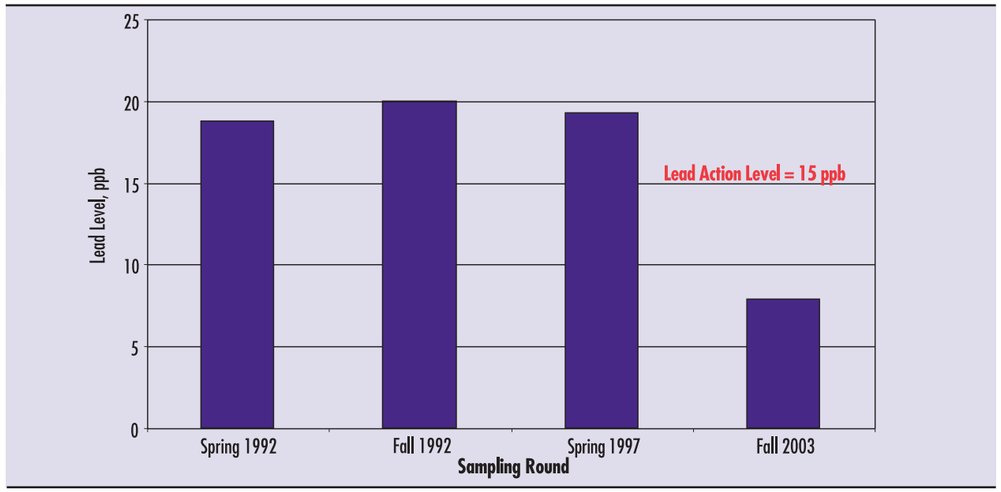
Lead and copper regional monitoring program results

Parameter and Units	MCLG	Action Level+	Results of 2003 Sampling*	Homes Exceeding Action Level	Source
Lead, ppb	0	15	7.9	11 of 375	Corrosion of household plumbing systems
Copper, ppm	1.3	1.3	0.2	0 of 375	Corrosion of household plumbing systems

* 90th Percentile: i.e. 90 percent of the samples were less than the values shown.

\+ The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Regional Monitoring Program
Lead Sampling Results



Monitoring to protect public health

Monitoring in 2003 demonstrates that the levels of compounds found in the drinking water are low, well below levels EPA considers safe. If the regulated levels for any of the compounds were ever exceeded, SPU would notify the public regarding possible health effects. The health effects language given below is for information only.

Detected Compound	EPA's Health Effects Language	Do these Health Effects Apply to Seattle's Water?
Bromate	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.	**No**
Total Trihalomethanes	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.	**No**
Haloacetic Acids(5)	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.	**No**
Total Coliform	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.	**No**
Chlorine	Some people who use drinking water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.	**No**

Sensitive subpopulations and Cryptosporidium

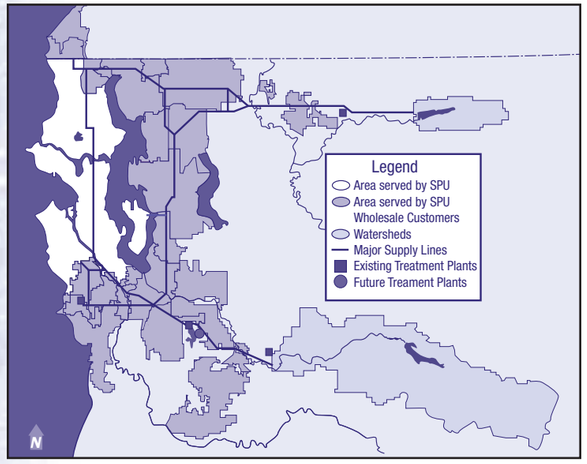
Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as people with cancer undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. Environmental Protection Agency/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Cryptosporidium is a disease-causing organism that is commonly found in the natural environment. In 2003, *Cryptosporidium* was detected in 4 of the 24 raw water samples collected from the Cedar supply, with a maximum concentration of 12 organisms per 100 liters. These levels are very low compared to most rivers. With the construction of the new Cedar Water Treatment Facility in 2004 and the Tolt Treatment Facility in 2001, SPU's treatment processes are now very effective at killing *Cryptosporidium* in the surface water sources.

SPU has long been committed to a strong security program to protect water quality and water service reliability. SPU continues to evaluate and improve it's security program.

Where our drinking water originates

The Cedar River and the South Fork Tolt River supply almost all of Seattle's drinking water. These rivers begin in the Cascade Mountains and have very large uninhabited watersheds (the areas that drain to the two rivers). When necessary to meet demands, Seattle Public Utilities (SPU) can supplement these supplies with water from the Riverton and Boulevard Park Wells, located near Sea-Tac Airport. The wells were used for 33 days in 2003.



How SPU protects the source

Protection of the two watersheds is very important to SPU's water quality program. Since both watersheds are publicly owned, SPU can enforce a comprehensive watershed protection program. This program prohibits agricultural, industrial and recreational activities in the watersheds, and no one is allowed to live there. The Washington State Department of Health has surveyed our watersheds and determined that Seattle's sources have a low vulnerability to contamination. This means there is little opportunity for contaminants to enter the water. Even so, there is always some potential for natural sources of contamination. In Seattle's surface water supplies, the potential sources of contamination include:

- microbial contaminants, such as viruses, bacteria, and protozoa from wildlife;
- inorganic contaminants, such as salts and metals, which are naturally occurring, and;
- organic contaminants, which result from chlorine combining with the naturally occurring organic matter.

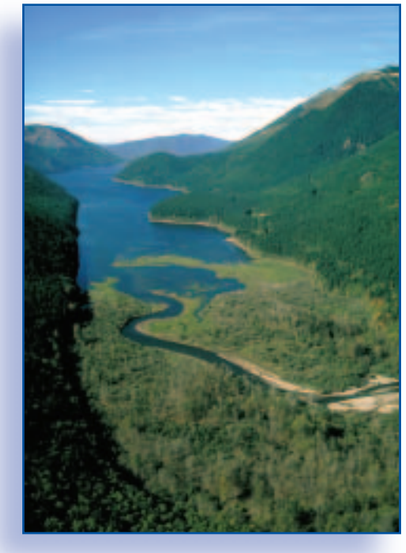
How our drinking water is treated

Current Cedar treatment is four steps: screening (removing twigs and leaves), disinfection with chlorine, fluoridation, and corrosion control. There will soon be two additional steps in the treatment of the Cedar supply: ozonation and ultraviolet light (UV) disinfection. By the time you receive this publication, the additional steps should be operating, or almost ready for operation. See page 7 for more details. Treatment for the Tolt supply includes screening, ozonation, coagulation and flocculation, filtration, chlorination, fluoridation, and corrosion control.

Information from the EPA

To ensure that tap water is safe to drink, the EPA adopts regulations setting the water quality standards for public water systems. The federal Food and Drug Administration regulates contaminants in bottled water and is responsible for providing the same level of public health protection.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline (1-800-426-4791).



Riverton and Boulevard Park Wells

These wells were in operation from September 4th to October 7, 2003. The wells produced a total of 257 million gallons, which represents 0.5% of the total supply for the year. The well water is blended at least 50% with water from the Cedar supply before being delivered to customers. The levels shown in the table below would generally be reduced by blending with Cedar water.

		EPA's Allowable Limits		Riverton Heights Well Results	Boulevard Park Well Results	
Detected Compounds	**Units**	**MCLG**	**MCL**			**Typical Sources**
Turbidity	NTU	NA	TT	0.25	0.08	Soil runoff
Nitrate	ppm	10	10	ND	0.8	Erosion of natural deposits
Fluoride	ppm	4	4	0.6	0.2	Water additive, which promotes strong teeth
Arsenic	ppb	0	10	5.7	1.5	Erosion of natural deposits
Radon	pCi/L	No EPA limit set		575	625	Erosion of natural deposits
DCPA	ppb	No EPA limit set		ND – 0.69	ND	Herbicide component

Other water quality data

SPU monitors many other parameters in the water that are not regulated, but may be of interest to our customers. The following table includes many of these parameters, some of which have a Secondary Maximum Contaminant Level (SMCL). A SMCL is set based on aesthetics, and does not have a health impact.

Monitoring for these parameters occurs either at the entry to the distribution system right after treatment, or within the distribution system. More water quality data can be found on SPU's web site listed on the back of this report.

Secondary Standards	**SMCL**	**Units**	**Cedar**	**Tolt**
Aluminum	50 - 200	ppb	72	27
Chloride	250	ppm	4	3
Color	15	Std. units	ND	ND
Iron	300	ppb	27	15
Manganese	50	ppb	3	ND
pH, range	6.5 - 8.5	pH units	7.8 - 8.5	8.1 - 8.7
Total Dissolved Solids	500	ppm	48	37
Sulfate	250	ppm	1	2
Zinc	5	ppm	ND	ND
Other Parameters				
Alkalinity, Total (as CaCO3)	NA	ppm	22	15
Calcium, (as CaCO3)	NA	ppm	26	23
Hardness, (as CaCO3)	NA	ppm	30	25
Hardness, (as CaCO3)	NA	grains/gal.	1.7	1.4
Magnesium	NA	ppm	1.1	0.3
Oxygen, Dissolved	NA	ppm	11	16
Sodium	NA	ppm	2.3	1.1
Temperature, annual range	NA	Celsius	5 - 20	5 - 20

NA: Not applicable
ND: Not detected